

DuPont Packaging



Product Information

Selar® PT



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DuPont™ Selar® PT 8307 specialty polyester resin

Description

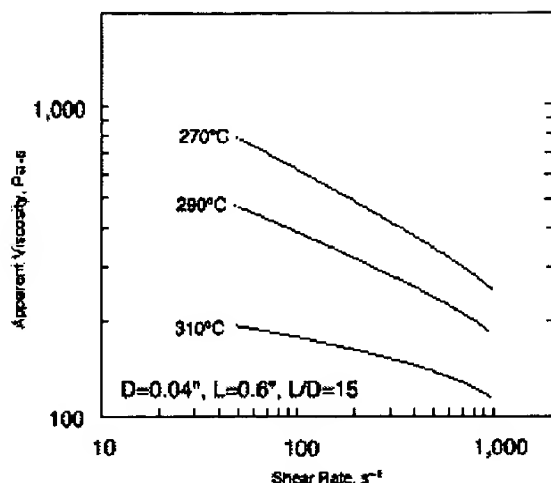
Selar® PT 8307 is a modified polyester copolymer resin in the high melt viscosity (HMV) series.* The HMV modification changes the rheology of the melt and provides better processability in extrusion operations. It can be processed in conventional extruders designed for polyolefins or polyesters. Typical properties and rheology curves are shown in Table 1 and Figure 1, respectively.

Table 1 — Typical Properties of Selar® PT 8307 Barrier Resin

Property	Typical Value	Test Method
Intrinsic Viscosity	0.71	DuPont Method*
Glass Transition Temperature	70°C (158°F)	DSC, ASTM D3418
Melt Point	220°C (429°F)	DSC, ASTM D3418
Density (amorphous)	1.33 g/cc	ASTM D1505
Sheet Properties, 10-mil Sheet		
Gloss		
20°	150	ASTM D2457
45°	100	
Transparency	80%	ASTM D1746
Haze	0.2%	ASTM D1003
COF, film/film	0.35	ASTM D1894
Tensile Strength		
MD	62.0 MPa (8.9 kpsi)	ASTM D882
TD	59.0 MPa (8.5 kpsi)	
Tensile Modulus		
MD	2100 MPa (304 kpsi)	ASTM D882
TD	2025 MPa (293 kpsi)	
Spencer Impact	6.2 J/mm (1.4 in-lb/mil)	ASTM D3420
Elmendorf Tear--TD	6930 g/mm (180 g/mil)	ASTM D1922
Barrier Properties, 1-mil Film		
O ₂ Transmission Rate	8.3 cc-mil/100 in ² -day-atm	ASTM D3985
Water Vapor Transmission Rate	2.8 g-mil/100 in ² -day-atm	Mocon Permatran W
Tensile Bar Property, 0.125-in Tensile Bar		
Flexural Modulus	2758 MPa (400 kpsi)	ASTM D790

*Calculated from testing done in TFA/CH₂CH₁₂

Figure 1 — Selar® PT 8307 Rheology*



*Data from Kayeness Rheometer

Applications

Selar® PT 8307 has good melt strength and is ideal for extrusion coating as a monolayer or in a coextruded film structure. Because Selar® PT 8307 has a lower melt point than many polyester resins, it is suitable for coextrusion with temperature-sensitive materials. Selar® PT 8307 has moderate oxygen and moisture barrier properties, is heat sealable, and will not scalp flavor. It is a good resin choice for packaging applications such as liquid and snack packaging.

Processing Information

Selar® PT 8307 copolymer polyester can be processed easily with "general purpose" or polyolefin screws, although barrier flighted screws designed for PET give higher throughput rates. A coathanger die is recommended to minimize dead spots where degradation can occur. The suggested temperature profile for monolayer coating is shown in Table 2. A melt temperature of 271-282°C (520-540°F) is suggested for monolayer coating, for the best combination of melt strength and adhesion to unprimed paper or paperboard substrate. The melt temperature for a coextrusion should be chosen to best match the viscosity of the adjacent layers. Processing at too low a temperature may cause the melt to be nonhomogeneous, the extruder to draw excessive amperage, or the polymer to freeze off. The main barrel temperature should not be set below 232°C (450°F). Excessively high temperatures will reduce melt strength and may cause the polymer to discolor. Variation from the suggested temperature profile may be appropriate, depending on the extruder and screw design, the incoming resin temperature, and the available drive power.

For monolayer extrusion coating, a melt temperature in the range of 304-327°C (580-620°F) is recommended. For coextrusion coating, the melt temperature should be lower as determined by the structure.

Table 2 — Suggested Extruder Temperature Profile for Selar® PT 8307 Barrier Resin

Temperature	Feed Zone	Zone 2	Zone 3	Zone 4	Metering Zone	Adapter	Die
°C	204	232	268	277	279	279	279
°F	400	450	515	530	535	535	535

Drying

In-line drying is essential for polyester resin. A moisture content of less than 0.005% (50 ppm) is recommended to prevent viscosity degradation. Typical drying conditions are 163-177°C (325-350°F), dew point -32°C (-25°F), air flow rate 1 ft³/min per pph of resin throughput, and drying time 5-6 hr. The resin should not be exposed to atmospheric conditions after drying.

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L Number	Hits	Search Text	DB	Time stamp
1	1471	polyester.ab. and (polyethylene or polyolefin\$2).ab.	USPAT; US-PGPUB	2002/08/25 14:59
2	60731	(lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.	USPAT; US-PGPUB	2002/08/25 14:29
3	105404	film.ab.	USPAT; US-PGPUB	2002/08/25 14:30
5	109	(polyester.ab. and (polyethylene or polyolefin\$2).ab.) and ((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.) and film.ab.	USPAT; US-PGPUB	2002/08/25 14:34
6	28	amorphous and ((polyester.ab. and (polyethylene or polyolefin\$2).ab.) and ((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.) and film.ab.)	USPAT; US-PGPUB	2002/08/25 14:30
7	7437	petg or cyclohexanedimethanol	USPAT; US-PGPUB	2002/08/25 14:53
8	22	((polyester.ab. and (polyethylene or polyolefin\$2).ab.) and ((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.) and film.ab.) and (petg or cyclohexanedimethanol)	USPAT; US-PGPUB	2002/08/25 14:34
9	585	polyester.ab. and (polyolefin\$2).ab.	USPAT; US-PGPUB	2002/08/25 14:45
10	113	(polyester.ab. and (polyolefin\$2).ab.) and ((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.)	USPAT; US-PGPUB	2002/08/25 14:38
11	53	film.ab. and ((polyester.ab. and (polyolefin\$2).ab.) and ((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.))	USPAT; US-PGPUB	2002/08/25 14:38
12	277	polyester.ab. and (olefin\$2).ab.	USPAT; US-PGPUB	2002/08/25 14:45
13	38	((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.) and (polyester.ab. and (olefin\$2).ab.)	USPAT; US-PGPUB	2002/08/25 14:46
14	20	((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.) and (polyester.ab. and (olefin\$2).ab.)) and film.ab.	USPAT; US-PGPUB	2002/08/25 14:49
15	192679	symmetrical or symmetry	USPAT; US-PGPUB	2002/08/25 14:49
16	626	polyester.ab. and (symmetrical or symmetry)	USPAT; US-PGPUB	2002/08/25 14:49
18	62	((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.) and (polyester.ab. and (symmetrical or symmetry))	USPAT; US-PGPUB	2002/08/25 14:50
19	21	((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.) and (polyester.ab. and (symmetrical or symmetry))) and amorphous	USPAT; US-PGPUB	2002/08/25 14:50
20	269	((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.) and (petg or cyclohexanedimethanol) and film.ab.	USPAT; US-PGPUB	2002/08/25 14:53
21	41	(symmetrical or symmetry) and (((lamine or composite or multilayer\$2 or (multi adj layer\$2)).ab.) and (petg or cyclohexanedimethanol) and film.ab.)	USPAT; US-PGPUB	2002/08/25 14:57
22	334	"a/b/a" or "b/a/b"	USPAT; US-PGPUB	2002/08/25 14:57
23	45	("a/b/a" or "b/a/b") and polyester.ab.	USPAT; US-PGPUB	2002/08/25 14:57
24	45702	polyester and (polyethylene or polyolefin\$2 or olefin\$2)	EPO; JPO; DERWENT	2002/08/25 15:05
25	1486	petg or cyclohexanedimethanol	EPO; JPO; DERWENT	2002/08/25 15:00
26	173	(polyester and (polyethylene or polyolefin\$2 or olefin\$2)) and (petg or cyclohexanedimethanol)	EPO; JPO; DERWENT	2002/08/25 15:00

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27	95511	symmetrical or symmetry	EPO; JPO; DERWENT	2002/08/25 15:00
28	0	(symmetrical or symmetry) and ((polyester and (polyethylene or polyolefin\$2 or olefin\$2)) and (petg or cyclohexanedimethanol))	EPO; JPO; DERWENT	2002/08/25 15:00
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29	75	((polyester and (polyethylene or polyolefin\$2 or olefin\$2)) and (petg or cyclohexanedimethanol)) and film	EPO; JPO; DERWENT	2002/08/25 15:01
31	16713	polyester and (polyolefin\$2 or olefin\$2)	EPO; JPO; DERWENT	2002/08/25 15:05
32	17	(polyester and (polyolefin\$2 or olefin\$2)) and (petg or cyclohexanedimethanol) and film	EPO; JPO; DERWENT	2002/08/25 15:05
33	26	selar adj PT	USPAT; US-PGPUB	2002/08/25 15:28